

CITY OF LAPWAI (PWS 2350011)
SOURCE WATER ASSESSMENT FINAL REPORT

February 5, 2002



State of Idaho
Department of Environmental Quality

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Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. This assessment is based on a land use inventory of the designated source water assessment area and sensitivity factors associated with the well and aquifer characteristics.

This report, *Source Water Assessment for City of Lapwai, Idaho*, describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The City of Lapwai drinking water system consists of two main wells, the #5 Reservoir Well and the JD Well, and one back-up well taken off line on December 31, 1999, the Ball Field Well, used only for emergencies. The #5 Reservoir Well and the Ball Field Well rated high susceptibility rating to inorganic, volatile organic, synthetic organic, and moderate susceptibility to microbial contaminants. Both of these wells had high ratings for hydrologic sensitivity, moderate ratings for system construction, and high to moderate land use scores. The JD Well rated moderate susceptibility for all types of contaminants, mainly due to the low permeability layers that reduced the hydrologic sensitivity score to the moderate category.

The most significant water quality issue is that of total coliform bacteria in the distribution system. Total coliform bacteria have been detected in November 1992, March 1993, July 1994, March 1995, December 1995, January 1996, and July 1997 at various locations throughout the City of Lapwai. These numerous detections could signal a possible contamination problem. No volatile organic contaminants or synthetic organic contaminants have ever been detected. The inorganic contaminants fluoride, nitrate, and barium have been detected, but at levels below the current maximum contaminant levels as set by the U.S. Environmental Protection Agency. Though there have not been chemical problems with the system water, the City of Lapwai should be aware that the potential for contamination from the aquifer still exists.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

For the City of Lapwai system drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system’s components and its capacity). The City of Lapwai should maintain their chlorination disinfection system to deal with the total coliform bacteria detections. No chemicals should be stored or applied within the 50-foot radius of the wellheads. A contingency plan should be established to deal with any contamination and possible spills from Lapwai Creek and Highway 95. As much of the designated protection areas are outside the direct jurisdiction

of the City of Lapwai, collaboration and partnerships with state and local agencies, and industry groups should be established and are critical to the success of drinking water protection. In addition, the well should maintain sanitary standards regarding wellhead protection.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan as the delineations encompass much urban and commercial land uses. Public education topics could include proper lawn and garden care practices, household hazardous waste disposal methods, proper care and maintenance of septic systems, and the importance of water conservation to name but a few. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the U.S. Environmental Protection Agency. As there is a major transportation corridor through the delineation (Highway 95), the Idaho Department of Transportation should be involved in protection activities. If the system should need to expand in the future, new well sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

A system must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Lewiston Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR CITY OF LAPWAI, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this assessment means.** Maps showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are attached. The list of significant potential contaminant source categories and their rankings used to develop the assessment is also included.

Background

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area and sensitivity factors associated with the wells and aquifer characteristics.

Level of Accuracy and Purpose of the Assessment

Since there are over 2,900 public water sources in Idaho, there is limited time and resources to accomplish the assessments. All assessments must be completed by May of 2003. An in-depth, site-specific investigation of each significant potential source of contamination is not possible. **Therefore, this assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The Idaho Department of Environmental Quality (DEQ) recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The local community, based on its own needs and limitations, should determine the decision as to the amount and types of information necessary to develop a drinking water protection program. Wellhead or drinking water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The public drinking water system for the City of Lapwai is comprised of two active ground water wells and one offline emergency ground water well that serve approximately 930 people through approximately 310 connections. The wells are located in Nez Perce County, surrounding the City of Lapwai, just off of Highway 95 (Figure 1).

There are no significant water problems currently affecting the City of Lapwai source water. The inorganic contaminants (IOCs) fluoride, barium, and nitrate have been detected, but at levels below the maximum contaminant levels (MCLs) as set by the EPA. No volatile organic contaminants (VOCs) or synthetic organic contaminants (SOCs) have been detected in the well water. In November 1992, March 1993, July 1994, March 1995, December 1995, January 1996, and July 1997, total coliform bacteria were detected in the distribution system.

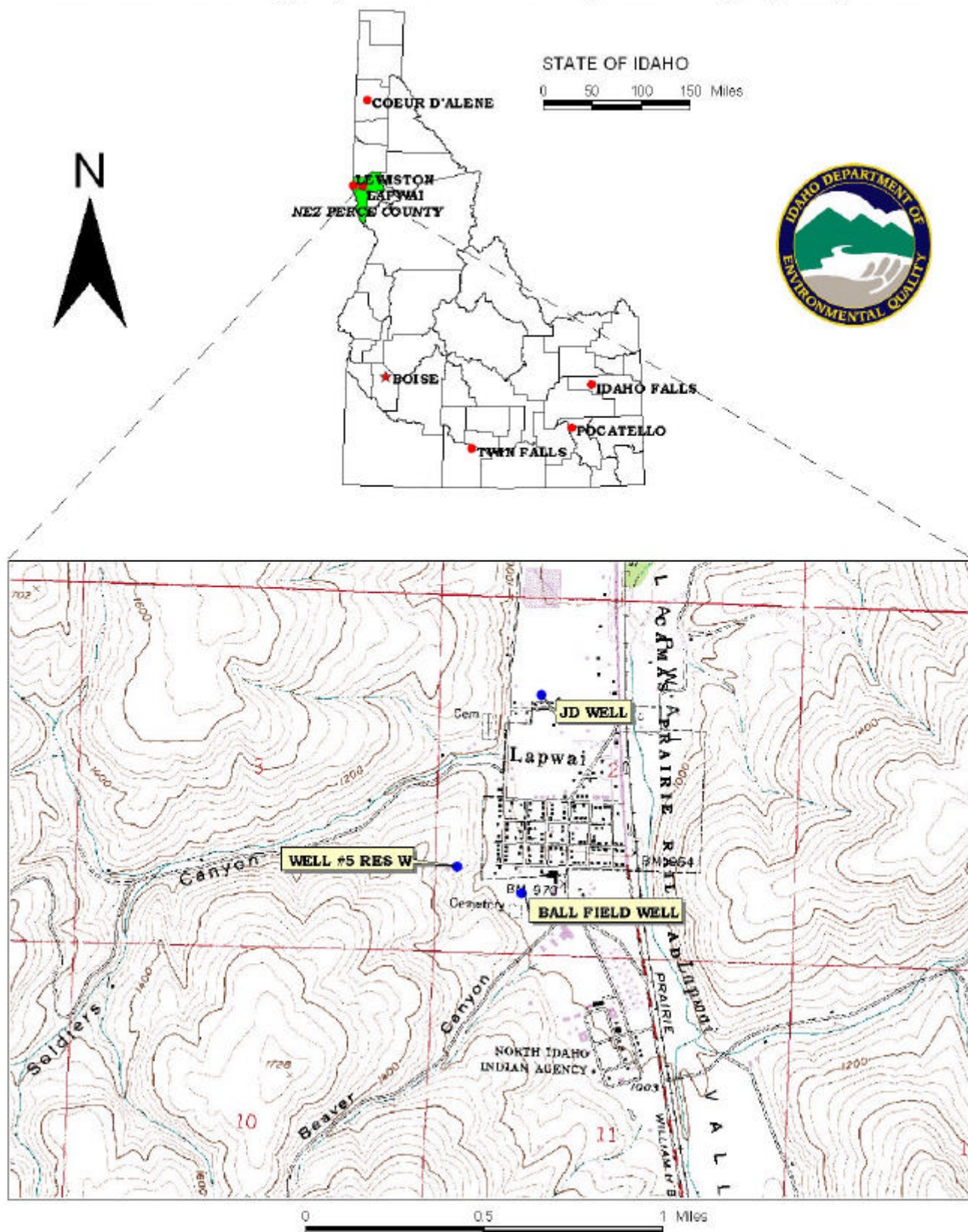
Defining the Zones of Contribution – Delineation

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel (TOT) zones (zones indicating the number of years necessary for a particle of water to reach a well) for water in the aquifer. DEQ contracted with the University of Idaho to perform the delineations using a refined computer model approved by the EPA in determining the 3-year (Zone 1B), 6-year (Zone 2), and 10-year (Zone 3) TOT for water associated with the Grande Ronde aquifer of the Clearwater Plateau in the vicinity of the City of Lapwai wells. The computer model used site specific data, assimilated by the University of Idaho from a variety of sources including the City of Lapwai well logs and operator input, local area well logs, and hydrogeologic reports (detailed below).

The Grande Ronde Formation of the Columbia River Basalt Flows provides most of the ground water pumped in the vicinity of Lapwai because of its great thickness, extensive lateral continuity, and lack of fine-grained interbeds. According to Crosswaite in a study of exploratory wells on the Nez Perce Reservation (1989), most of the wells with a 200-400 gpm potential are completed in the Grande Ronde Formation. The Grande Ronde is easily accessible to drilling along parts of the Clearwater River and some of the tributary valleys such as Lapwai Creek where it has been exposed by erosion (Crosswaite, 1989). Both the JD well and the Reservoir #5 wells are assumed for this study to be in the Grande Ronde, based on their production (200 and 300 gpm respectively) and their completion elevations.

Major faults, anticlinal folds, and a major topographic divide (the Blue Mountains) have been assumed by various parties (EPA, 1988; Wyatt-Jaykim, 1994) to provide the regional impermeable boundaries of the Lewiston Basin Deep Aquifer. To the north, the aquifer is bounded by the Clearwater Escarpment, commonly referred to as the Lewiston Hill. Faults at the toe of Lewiston Hill include the Vista and Wilma faults. The northeastern boundary of the Lewiston Basin Deep Aquifer is taken to be the Cottonwood Creek Fault. The southeastern boundary is the Limekiln fault along the front of the Craig Mountains, which meets the Snake River at Limekiln rapids. From the Snake River westward, the Grande Ronde fault is considered to be the southern boundary of the Aquifer, until it meets the

FIGURE 1. Geographic Location of the City of Lapwai



Blue Mountain topographic divide. This major topographic divide is assumed to be a regional ground water divide.

Within the Lewiston Basin Deep Aquifer, water is generally assumed to flow from recharge in the highlands (see section on recharge below) to discharge into the Snake and Clearwater Rivers (see contour map at the end of this chapter. In addition, Cohen and Ralston (1980) mapped areas of possible river/aquifer interconnection, and proposed that (a) the aquifer discharges to the Snake below Lewiston, and (b) the aquifer is recharged from surface water from Lapwai Creek plus the Clearwater in the reach intersecting Lapwai Creek, and (c) that the aquifer is recharged from surface water in the vicinity of the confluence of the Snake River with Asotin Creek. These locations for surface water recharge to the aquifer were postulated where the concurrent gradient of the stream is less than the dip of the basalt aquifer, so water can drain from the creek into the aquifer. This hypothesis is also supported by ground water chemistry data at Lapwai that is interpreted in Wyatt-Jaykim (1994) to mean that the ground water there is relatively young and therefore in a recharge area.

A component of vertical recharge into the Grande Ronde is assumed to exist in this basin because the basalts overlying the Grande Ronde are laterally discontinuous as a result of the many canyons which have downcut into the Grande Ronde (EPA, 1988), and because the interbed (comprised of clay and saprolite) which forms the top of the Grande Ronde is believed to allow vertical percolation (EPA, 1988).

Precipitation is 13 inches/year in Lewiston-Clarkston, whereas higher elevation areas average close to 25 inches annually (Cohen and Ralston, 1980). A modeling effort documented by Wyatt-Jaykim (1994), concluded on the basis of available data that 1 to 2 inches/year is a conservative estimate for recharge to the basalt aquifers in the vicinity of Lewiston and Lewiston Orchards.

The capture zones delineated herein are based upon limited data and must be taken as best estimates. If more data become available in the future these delineations should be adjusted based on additional modeling incorporating the new data.

The delineated source water assessment areas for the City of Lapwai #5 Reservoir Well and Ball Field Well can best be described as a broad elliptical area that extends to the southeast along Lapwai Creek (Figure 2). The JD Well source water assessment area is an east-southeast trending ellipse that only includes the 3-year TOT because of the influence of Lapwai Creek (Figure 3). The actual data used by the University of Idaho in determining the source water assessment delineation areas are available from DEQ upon request.

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by DEQ and from available databases.

Land use within the immediate area of the City of Lapwai wells consists of urban, residential, and a major transportation corridor, while the surrounding area is predominantly undetermined agriculture.

It is important to understand that a release may never occur from a potential source of contamination provided they are using best management practices. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, including educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

Contaminant Source Inventory Process

A two-phased contaminant inventory of the study area was conducted in October and November 2001. The first phase involved identifying and documenting potential contaminant sources within the City of Lapwai source water assessment areas (Figures 2 & 3) through the use of computer databases and Geographic Information System maps developed by DEQ. The second, or enhanced, phase of the contaminant inventory involved contacting the operator to identify and add any additional potential sources in the area.

The #5 Reservoir Well and Ball Field Well delineations have four potential contaminant sources, including a sand and gravel pit, two feed lots, and a transient well that recorded an MCL violation for the IOC nitrate (Table 1). The JD Well crosses the City of Lapwai's municipal wastewater land application site (Table 2). In addition, both delineations contain Lapwai Creek and Highway 95 as potential contaminant sources. The system should be aware that a spill on the section of Highway 95 contained within the delineations has a chance to contribute all classes of contamination to the aquifer.

**Table 1. City of Lapwai #5 Reservoir Well and Ball Field Well,
Potential Contaminant Inventory**

Site #	Source Description ¹	TOT ZONE ²	Source of Information	Potential Contaminants ³
	Highway 95	0-10	GIS Map	IOC, VOC, SOC, Microbials
	Lapwai Creek	0-10	GIS Map	IOC, VOC, SOC, Microbials
1	Sand and gravel pit	3-6	Database Search	IOC, VOC, SOC
2	Group 1 Site	6-10	Database Search	IOC
3	Feed lot	6-10	Enhanced Inventory	IOC
4	Feed lot	6-10	Enhanced Inventory	IOC

² TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead

³ IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Figure 2. City of Lapwai Delineation Map and Potential Contaminant Source Locations

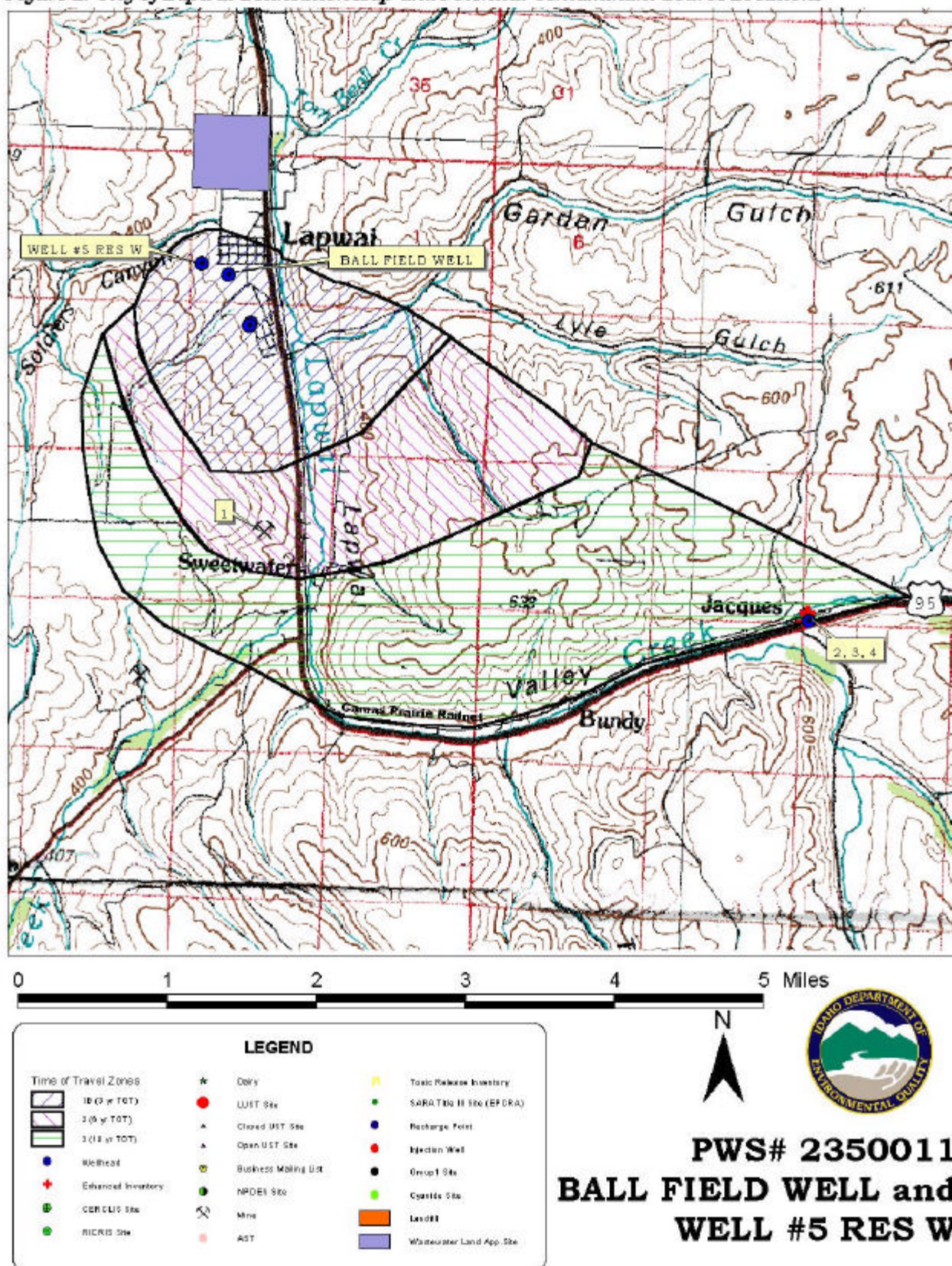
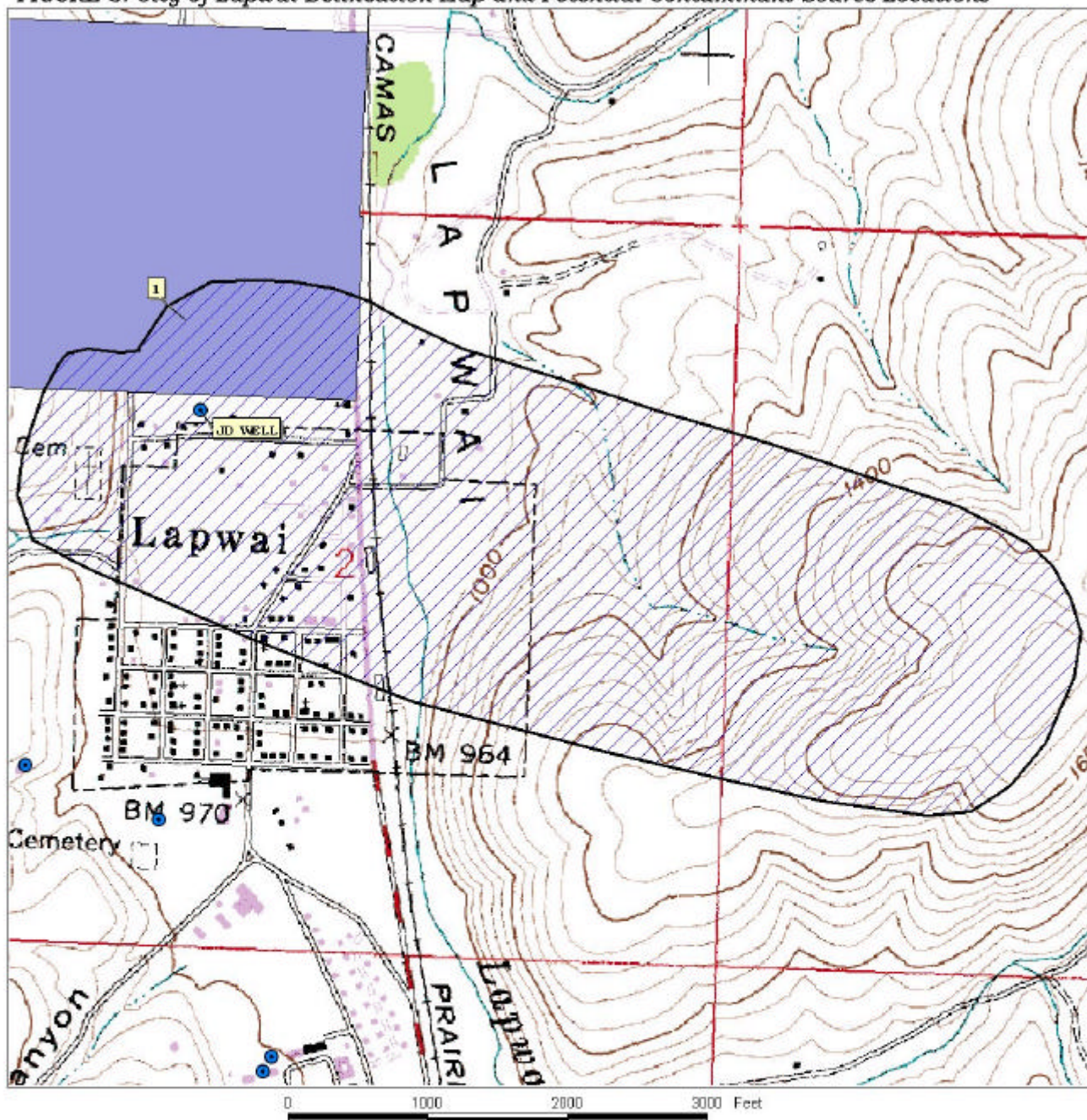


FIGURE 3. City of Lapwai Delineation Map and Potential Contaminant Source Locations



PWS# 2350011
JD WELL

Table 2. City of Lapwai JD Well, Potential Contaminant Inventory

Site #	Source Description ¹	TOT ZONE ²	Source of Information	Potential Contaminants ³
	Highway 95	0-3	GIS Map	IOC, VOC, SOC, Microbials
	Lapwai Creek	0-3	GIS Map	IOC, VOC, SOC, Microbials
1	Wastewater Land Application Site – Municipal	0-3	Database Search	IOC, VOC, SOC, Microbials

² TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead

³ IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Section 3. Susceptibility Analyses

Each well's susceptibility to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the well, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. Attachment A contains the susceptibility analysis worksheets for the system. The following summaries describe the rationale for the susceptibility ranking.

Hydrologic Sensitivity

The hydrologic sensitivity of a well is dependent upon four factors: the surface soil composition, the material in the vadose zone (between the land surface and the water table), the depth to first ground water, and the presence of a 50-foot thick fine-grained zone above the producing zone of the well. Slowly draining soils such as silt and clay typically are more protective of ground water than coarse-grained soils such as sand and gravel. Similarly, fine-grained sediments in the subsurface and a water depth of more than 300 feet protect the ground water from contamination.

Hydrologic sensitivity is high for the #5 Reservoir Well and the Ball Field Well and moderate for the JD Well (Table 3). Regional soil data places the delineations within moderate to well drained soils. The vadose zone is gravel to basalt and the water table is located from about 100 to 200 feet below ground surface (bgs). The difference in the scores arises from the JD Well log showing that a 50-foot thick "tan clay" layer exists that can locally reduce the downward movement of contaminants.

Well Construction

Well construction directly affects the ability of the well to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the intake of the well. Lower scores imply a system is less vulnerable to contamination. For example, if the well casing and annular seal both extend into a low permeability unit, then the possibility of contamination is reduced and the system construction score goes down. If the highest production interval is more than 100 feet below the water table, then the system is considered to have better buffering capacity. If the wellhead and surface seal are maintained to standards, as outlined in sanitary surveys, then contamination down the well bore is less likely. If the well is protected from surface flooding and is outside the 100-year floodplain, then contamination from surface events is reduced. A sanitary survey was conducted in 2001. The #5 Reservoir Well and the

Ball Field Well have moderate system construction scores, whereas the JD Well has a low system construction score.

The JD Well, drilled in 1996 to a depth of 220 feet, has 0.322-inch thick, 10-inch casing installed to 126 feet bgs and 0.322-inch thick, 8-inch casing installed to 206 feet bgs into “hard gray basalt.” The annular seal was placed to 50 feet bgs into “tan clay.” These materials are deemed low permeability zones. The static water table is approximately 12 feet bgs and the well is screened from 164 to 206 feet bgs. The sanitary survey (DEQ, 2001) indicates an adequate weal seal exists, but that the casing only rises 8 inches above the floor. Information provided during the review of the Source Water Assessment process indicates that the casing has been raised to 20 inches, thereby protecting the well from surface flooding.

The #5 Reservoir Well, drilled in 1987, has 12-inch casing and is approximately 460 feet deep. No well log was available to provide information regarding the placement of the annular seal. As the well produces about 300 gallons per minute (gpm), it likely produces from the deep basalts, which are greater than 100 feet below the static water table. An earlier sanitary survey (DEQ, 1988) states that “gate valves, pressure gauges, check valves, sample taps, and a flow meter are present.” A recent sanitary survey (DEQ, 2001) indicates that the well seal is adequate and that there is surface flooding protection. Problems indicated on the sanitary survey (a dripping Clay valve near the well and corrosion in the piping) have been corrected.

The Ball Field Well, drilled in 1970 to a depth of 255 feet, has 0.278-inch thick, 10-inch casing installed to 28.5 feet bgs and 0.278-inch thick, 8-inch casing installed to 197.5 feet bgs into “hard gray basalt.” The annular seal was placed to 28.5 feet bgs into “soft basalt.” The static water table is approximately 40 feet bgs and the well is producing from 208 to 230 feet bgs. An older sanitary survey (DEQ, 1995) states that no corrections are needed. The most recent sanitary survey (DEQ, 2001) lists this well as inactive, though it indicates that the well may be sold to the school for irrigation water.

A determination was made as to whether current public water system (PWS) construction standards are being met. Though the wells may have been in compliance with standards when they were completed, current PWS well construction standards are more stringent. The Idaho Department of Water Resources *Well Construction Standards Rules* (1993) require all PWSs to follow DEQ standards as well. IDAPA 58.01.08.550 requires that PWSs follow the *Recommended Standards for Water Works* (1997) during construction. These standards include provisions for well screens, pumping tests, and casing thicknesses to name a few. Table 1 of the *Recommended Standards for Water Works* (1997) lists the required steel casing thickness for various diameter wells. Six-inch diameter wells require a casing thickness of at least 0.280-inches and 8-inch diameter casing requires 0.322-inch thick casing. The wells were assessed an additional point in the system construction rating.

Potential Contaminant Source and Land Use

The #5 Reservoir Well and the Ball Field Well were rated high land use for IOCs (i.e. nitrates, arsenic), and SOCs (i.e. pesticides), and moderate for VOCs (i.e. petroleum products, chlorinated solvents) and microbial contaminants (i.e. bacteria). The JD Well was rated moderate for all categories. The agricultural nature of the land coupled with the presence of Highway 95 and Lapwai Creek influenced the scores the most.

Final Susceptibility Ranking

An IOC detection above a drinking water standard MCL, any detection of a VOC or SOC, or a detection of total coliform bacteria or fecal coliform bacteria at the wellhead will automatically give a high susceptibility rating to a well despite the land use of the area because a pathway for contamination already exists. Additionally, if there are contaminant sources located within 50 feet of the source then the wellhead will automatically get a high susceptibility rating. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0 to 3-year time of travel zone (Zone 1B) and agricultural land contribute greatly to the overall ranking. In terms of total susceptibility, the #5 Reservoir Well and the Ball Field Well rated high for IOCs, VOCs, and SOCs, and moderate for microbial contaminants. The JD Well rated moderate for all categories.

Table 3. Summary of City of Lapwai Susceptibility Evaluation

Well	Susceptibility Scores ¹									
	Hydrologic Sensitivity	Contaminant Inventory				System Construction	Final Susceptibility Ranking			
		IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
#5-Reservoir	H	H	M	H	M	M	H	H	H	M
Ball Field	H	H	M	H	M	M	H	H	H	M
JD Well	M	M	M	M	M	L	M	M	M	M

¹H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility,

IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Susceptibility Summary

Overall, the #5 Reservoir Well and the Ball Field Well rated high for all categories except microbial contaminants, and the JD Well rated moderate for all categories. The main difference between the wells is that the JD Well log showed the presence of a 50-foot thick low permeability clay layer that lowered the hydrologic sensitivity score from high to moderate.

There are no significant water problems currently affecting the City of Lapwai source water. The IOCs fluoride, barium, and nitrate have been detected, but at levels below the MCLs as set by the EPA. No VOCs or SOCs have been detected in the well water. In November 1992, March 1993, July 1994, March 1995, December 1995, January 1996, and July 1997, total coliform bacteria were detected in the distribution system.

Section 4. Options for Drinking Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective drinking water protection program is tailored to the particular local drinking water protection area. A community with a fully developed drinking water protection program will

incorporate many strategies. For the City of Lapwai system drinking water protection activities should first focus on maintaining the sanitary standards regarding wellhead protection. Also, the chlorination disinfection system should be maintained as a way to deal with the total coliform bacteria detections. No chemicals should be stored or applied within the 50-foot radius of the wellheads. A contingency plan should be established to deal with any contamination and possible spills from Lapwai Creek and Highway 95. As much of the designated protection areas are outside the direct jurisdiction of the City of Lapwai, collaboration and partnerships with state and local agencies, and industry groups should be established and are critical to the success of drinking water protection.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan as the delineations encompass much urban and commercial land uses. Public education topics could include proper lawn and garden care practices, household hazardous waste disposal methods, proper care and maintenance of septic systems, and the importance of water conservation to name but a few. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. As there are major transportation corridors through the delineations (Highway 95), the Idaho Department of Transportation should be involved in protection activities. If the system should need to expand in the future, new well sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

A system must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Lewiston Regional Office of the DEQ or the Idaho Rural Water Association.

Assistance

Public water supplies and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Lewiston Regional DEQ Office (208) 799-4370

State DEQ Office (208) 373-0502

Website: <http://www2.state.id.us/deq>

Water suppliers serving fewer than 10,000 persons may contact John Bokor, Idaho Rural Water Association, at 1-800-962-3257 for assistance with drinking water protection (formerly wellhead protection) strategies.

POTENTIAL CONTAMINANT INVENTORY

LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ASuperfund, is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100-year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5 mg/L.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

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Attachment A

City of Lapwai
Susceptibility Analysis
Worksheets

The final scores for the susceptibility analysis were determined using the following formulas:

- 1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2) – for #5 Reservoir Well and the Ball Field Well
- 2) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.273) – for JD Well
- 3) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.375)

Final Susceptibility Scoring:

0 - 5 Low Susceptibility

6 - 12 Moderate Susceptibility

≥ 13 High Susceptibility

Ground Water Susceptibility Report

Public Water System Name :

LAPWAI CITY OF

Well# : WELL #5 RES W

Public Water System Number 2350011

02/05/2002 11:21:58 AM

1. System Construction		SCORE			
Drill Date	08/18/1983				
Driller Log Available	NO				
Sanitary Survey (if yes, indicate date of last survey)	YES	2001			
Well meets IDWR construction standards	NO	1			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	NO	2			
Highest production 100 feet below static water level	YES	0			
Well located outside the 100 year flood plain	YES	0			
Total System Construction Score		3			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
Total Hydrologic Score		6			
3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED PASTURE	1	1	1	1
Farm chemical use high	YES	0	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		1	1	3	1
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	2	2	2	2
(Score = # Sources X 2) 8 Points Maximum		4	4	4	4
Sources of Class II or III leacheable contaminants or	YES	6	2	2	
4 Points Maximum		4	2	2	
Zone 1B contains or intercepts a Group 1 Area	YES	2	0	0	0
Land use Zone 1B Greater Than 50% Irrigated Agricultural Land		4	4	4	4
Total Potential Contaminant Source / Land Use Score - Zone 1B		14	10	10	8
Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	YES	2	2	2	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Land Use Zone II Greater Than 50% Irrigated Agricultural Land		2	2	2	
Potential Contaminant Source / Land Use Score - Zone II		5	5	5	0
Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of	YES	1	1	1	
Total Potential Contaminant Source / Land Use Score - Zone III		3	3	3	0
Cumulative Potential Contaminant / Land Use Score		23	19	21	9
4. Final Susceptibility Source Score		14	13	13	12
5. Final Well Ranking		High	High	High	Moderate

1. System Construction		SCORE			
Drill Date	04/27/1970				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES	2001			
Well meets IDWR construction standards	NO	1			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	NO	2			
Highest production 100 feet below static water level	YES	0			
Well located outside the 100 year flood plain	YES	0			
Total System Construction Score		3			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
Total Hydrologic Score		6			
3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED PASTURE	1	1	1	1
Farm chemical use high	YES	0	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		1	1	3	1
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	2	2	2	2
(Score = # Sources X 2) 8 Points Maximum		4	4	4	4
Sources of Class II or III leacheable contaminants or	YES	6	2	2	
4 Points Maximum		4	2	2	
Zone 1B contains or intercepts a Group 1 Area	YES	2	0	0	0
Land use Zone 1B Greater Than 50% Irrigated Agricultural Land		4	4	4	4
Total Potential Contaminant Source / Land Use Score - Zone 1B		14	10	10	8
Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	YES	2	2	2	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Land Use Zone II Greater Than 50% Irrigated Agricultural Land		2	2	2	
Potential Contaminant Source / Land Use Score - Zone II		5	5	5	0
Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of	YES	1	1	1	
Total Potential Contaminant Source / Land Use Score - Zone III		3	3	3	0
Cumulative Potential Contaminant / Land Use Score		23	19	21	9
4. Final Susceptibility Source Score		14	13	13	12
5. Final Well Ranking		High	High	High	Moderate

1. System Construction		SCORE			
Drill Date	07/09/1996				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES	2001			
Well meets IDWR construction standards	NO	1			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	YES	0			
Highest production 100 feet below static water level	YES	0			
Well located outside the 100 year flood plain	YES	0			
Total System Construction Score		1			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	YES	0			
Total Hydrologic Score		4			
3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED PASTURE	1	1	1	1
Farm chemical use high	YES	0	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		1	1	3	1
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	3	3	3	3
(Score = # Sources X 2) 8 Points Maximum		6	6	6	6
Sources of Class II or III leacheable contaminants or	YES	7	3	3	
4 Points Maximum		4	3	3	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B Greater Than 50% Irrigated Agricultural Land		4	4	4	4
Total Potential Contaminant Source / Land Use Score - Zone 1B		14	13	13	10
Cumulative Potential Contaminant / Land Use Score		15	14	16	11
4. Final Susceptibility Source Score		8	8	8	9
5. Final Well Ranking		Moderate	Moderate	Moderate	Moderate